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NYISO Spotlights Energy Storage

White Paper Examines Energy Storage Role in Renewable Power and System Reliability

Rensselaer, NY—The New York Independent System Operator (NYISO) has issued *Energy Storage in the New York Electricity Markets*, a white paper that reviews the contributions and possible benefits of energy storage systems to the operation of the bulk power system.

"Energy storage can play a valuable role in the continued development of New York's renewable power resources. For example, the variable nature of wind generation poses special challenges to grid operators, such as the NYISO, that must constantly balance the supply of and demand for electricity on the grid. Flywheels, batteries and other energy storage systems expand our ability to address those needs," said Stephen G. Whitley, NYISO president and CEO.

Over the years, New York State has been a leader in electric energy storage with the development of major hydropower pumped storage facilities. The New York Power Authority (NYPA) Blenheim-Gilboa facility is the fifth largest pumped storage project in the nation. The 1,100-megawatt project began providing power in 1973, with a major revitalization and upgrade scheduled to be completed in 2010. New York State's other major pumped storage facility is the Lewiston Pump-Generating Plant, which is part of NYPA's Niagara Power Project, built in the early 1960s.

Today, various companies are planning to develop grid-scale energy storage facilities in New York based on flywheel and battery technology. Beacon Power is constructing a 20-megawatt flywheel energy storage facility in Stephentown. AES Energy Storage has proposed three 20-megawatt battery storage facilities in Broome, Onondaga and Niagara counties.

In 2009, the Federal Energy Regulatory Commission (FERC) approved changes developed by the NYISO to allow limited energy storage resources (LESR)—which includes battery and flywheel technologies—to provide the "regulation" service needed to balance electrical supply and demand on the grid.

Regulation service is now provided by power plants that increase or decrease output in response to system needs. LESRs can instantaneously switch from being a load to a generator, thus providing regulation service similar to that of a conventional power plant.

"These energy storage resources are ideal for responding to the moment-to-moment adjustments needed to operate the bulk electricity grid," Whitley noted.

Demand for electricity fluctuates throughout the day and the power to serve the demand must be generated and transported instantaneously. By expanding the resources available to provide regulation service, market competition may positively influence the cost of providing this component of electric service.

A copy of the NYISO white paper, *Energy Storage in the New York Electricity Markets, is* available from the NYISO Web site, <u>www.nyiso.com</u>.

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The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and conducts comprehensive planning for the state's bulk electricity system.